CLAIMS

We claim:

1.   A method for diagnosing an ocular disease, comprising:

placing an ocular tissue in the path of a light beam;

measuring a polarization shift of the light beam; and

diagnosing an ocular disease if the measured polarization shift corresponds to a polarization shift of a neovascularized tissue.

2.   The method of claim 1, wherein the method is noninvasive.

3.   The method of claim 1, wherein the ocular tissue includes retinal tissue.

4.   The method of claim 1, wherein the ocular tissue includes RPE/choroidal tissue.

5.   The method of claim 1, wherein the light beam includes light from a laser.

6.   The method of claim 1, wherein the ocular disease includes diabetic retinopathy.

7.   The method of claim 1, wherein the ocular disease includes macular degeneration.

8.   The method of claim 1, wherein the ocular disease includes cancer.

9.   A method for diagnosing an ocular disease, comprising:

placing an ocular tissue in the path of a light beam;

measuring an intensity of the light beam; and

diagnosing an ocular disease if the measured intensity corresponds to the intensity of a

neovascularized tissue.

10.   The method of claim 9, wherein the method is noninvasive.

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11.   The method of claim 9, wherein the ocular tissue includes retinal tissue.

12.   The method of claim 9, wherein the ocular tissue includes RPE/choroidal tissue.

10   13.   The method of claim 9, wherein the light beam includes light from a laser.

14.   The method of claim 9, wherein the ocular disease includes diabetic retinopathy.

15.   The method of claim 9, wherein the ocular disease includes macular degeneration.

15   16.   The method of claim 9, wherein the ocular disease includes cancer.

17.   A method for diagnosing an ocular disease, comprising:

placing an ocular tissue in the path of a light beam;

measuring a polarization shift of the light beam;

20   measuring an intensity of the light beam; and

diagnosing an ocular disease if the measured polarization shift and intensity correspond to

a polarization shift and intensity of a neovascularized tissue.

18.   The method of claim 17, wherein the method is noninvasive.

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19. An apparatus for diagnosing an ocular disease, comprising:

a laser;

a polarizer coupled to the laser;

a tissue sample holder coupled to the polarizer;

5   an analyzer coupled to the tissue sample holder;

a detector coupled to the analyzer; and

a data acquisition system coupled to the detector, the data acquisition system configured

to measure a polarization shift of a light beam emitted by the laser and diagnose

an ocular disease if the measured polarization shift corresponds to a polarization

10   shift of a neovascularized tissue.

20. The apparatus of claim 19, wherein the detector includes a photodiode.

21. The apparatus of claim 19, wherein the data acquisition system includes a digital meter.

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22. The apparatus of claim 19, wherein the data acquisition system includes a computer.

23. A method for detecting neovascularized tissue, comprising:

placing a tissue in the path of a light beam;

20   measuring a polarization shift of the light beam; and

detecting neovascularized tissue if the measured polarization shift corresponds to a

polarization shift of a neovascularized tissue.

24. The method of claim 23, wherein the method is noninvasive.

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25. The method of claim 23, wherein the tissue comprises ocular tissue.

26.   The method of claim 25, wherein the ocular tissue comprises retinal tissue.

27.   The method of claim 25, wherein the ocular tissue comprises RPE/choroidal tissue.

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28.   The method of claim 23, wherein the light beam comprises light from a laser.

29.   A method for detecting neovascularized tissue, comprising:

placing a tissue in the path of a light beam;

10   measuring an intensity of the light beam; and

detecting neovascularized tissue if the measured intensity corresponds to the intensity of a

neovascularized tissue.

30.   The method of claim 29, wherein the method is noninvasive.

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31.   The method of claim 29, wherein the tissue comprises ocular tissue.

32.   The method of claim 31, wherein the ocular tissue comprises retinal tissue.

20   33.   The method of claim 31, wherein the ocular tissue comprises RPE/choroidal tissue.

34.   The method of claim 29, wherein the light beam comprises light from a laser.

35.   An apparatus for diagnosing an ocular disease, comprising:

25   a laser;

a polarizer coupled to the laser;

a tissue sample holder coupled to the polarizer;

an analyzer coupled to the tissue sample holder;

a detector coupled to the analyzer; and

a data acquisition system coupled to the detector, the data acquisition system configured

> to measure an intensity of a light beam emitted by the laser and diagnose an ocular

> disease if the measured intensity corresponds to an intensity of a neovascularized

> tissue.

36.   The apparatus of claim 35, wherein the detector comprises a photodiode.

37.   The apparatus of claim 35, wherein the data acquisition system comprises a digital meter.

38.   The apparatus of claim 35, wherein the data acquisition system comprises a computer.

39.   An apparatus for detecting neovascularized tissue, comprising:

a laser;

a polarizer coupled to the laser;

a tissue sample holder coupled to the polarizer;

an analyzer coupled to the tissue sample holder;

a detector coupled to the analyzer; and

a data acquisition system coupled to the detector, the data acquisition system configured

> to measure a polarization shift of a light beam emitted by the laser and diagnose

> an ocular disease if the measured polarization shift corresponds to a polarization

> shift of a neovascularized tissue.

40.   The apparatus of claim 39, wherein the neovascularized tissue comprises neovascularized

ocular tissue.

41.   The apparatus of claim 39, wherein the detector comprises a photodiode.

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42.   An apparatus for detecting neovascularized tissue, comprising:

        a laser;

        a polarizer coupled to the laser;

        a tissue sample holder coupled to the polarizer;

10   an analyzer coupled to the tissue sample holder;

        a detector coupled to the analyzer; and

        a data acquisition system coupled to the detector, the data acquisition system configured

                to measure an intensity of a light beam emitted by the laser and diagnose an ocular

                disease if the measured intensity corresponds to an intensity of a neovascularized

15   tissue.

43.   The apparatus of claim 42, wherein the neovascularized tissue comprises neovascularized

ocular tissue.

20   44.   The apparatus of claim 42, wherein the detector comprises a photodiode.